

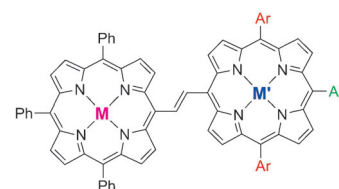


Porphyrins

O. Locos, B. Bašić, J. C. McMurtrie, P. Jensen, D. P. Arnold*

Homo- and Heteronuclear *meso,meso*-(*E*)-Ethene-1,2-diyl-Linked Diporphyrins: Preparation, X-Ray Crystal Structure, Electronic Absorption and Emission Spectra and Density Functional Theory Calculations

Conjugated diporphyrins: Homo- and heteronuclear *meso,meso*-(*E*)-ethene-1,2-diyl-linked diporphyrins (H_2 , Ni, Zn and heterocombinations) have been prepared by the Suzuki coupling of porphyrinylboronates and iodovinylporphyrins. This route enables the first studies of this class of compounds possessing intrinsic polarity. Spectroscopic studies and theoretical calculations document the interplay of steric and electronic effects of the bridge on interporphyrin communication.



Chem. Eur. J.
DOI: 10.1002/chem.201102995

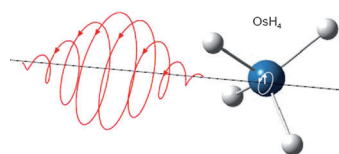


Femtochemistry

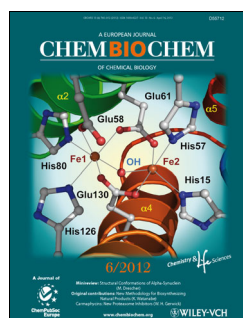
I. Barth,* C. Bressler, S. Koseki, J. Manz*

Strong Nuclear Ring Currents and Magnetic Fields in Pseudorotating OsH_4 Molecules Induced by Circularly Polarized Laser Pulses

Larger than ever before: A huge nuclear ring current—1.53 e per fs—and as a consequence, a gigantic magnetic field—623 Tesla—may be induced by means of a circularly polarized laser pulse that is designed to drive the pseudorotation of the central nucleus of the tetrahedral OsH_4 molecule.



Chem. Asian J.
DOI: 10.1002/asia.201100776

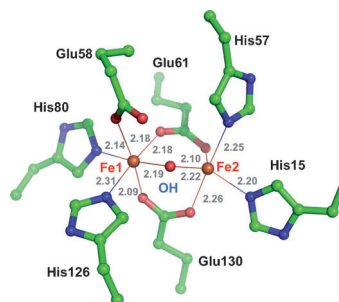


Iron Homeostasis

C. Shu, M. W. Sung, M. D. Stewart, T. I. Igumenova, X. Tan,* P. Li*

The Structural Basis of Iron Sensing by the Human F-box Protein FBXL5

Iron sensing: The F-box and leucine-rich repeat containing protein FBXL5 is an iron sensor that regulates the ubiquitination of iron regulatory protein IRP2. Crystal structures of the iron-sensing hemerythrin (Hr)-like domain of human FBXL5 (FBXL5 Hr) were determined in oxidized and reduced states. These structures revealed the mechanisms of iron sensing by FBXL5.



ChemBioChem
DOI: 10.1002/cbic.201200043

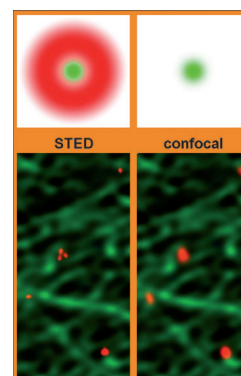


STED Microscopy

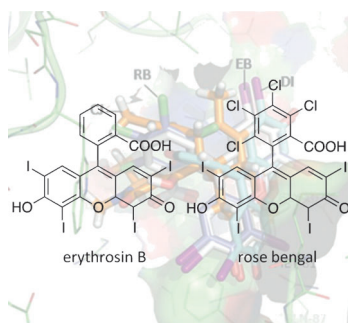
T. Müller, C. Schumann, A. Kraegeloh*

STED Microscopy and its Applications: New Insights into Cellular Processes on the Nanoscale

All things bright and beautiful: Superresolution STED microscopy has become a versatile tool for the study of nanoscale objects (see picture), be it cellular components in life sciences or nanoparticles in the material sciences. This review provides insight into the working principle, the latest advances and developments and the applications of STED microscopy.



ChemPhysChem
DOI: 10.1002/cphc.201100986



ChemMedChem

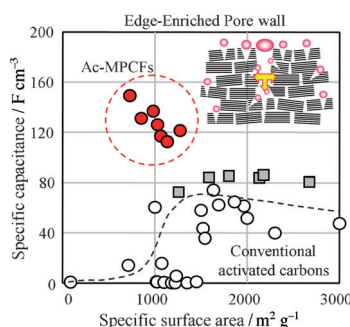
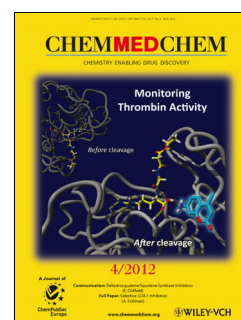
DOI: 10.1002/cmdc.201100594

Antimicrobial Agents

Y.-J. Huang, H. Wang, F.-B. Gao, M. Li, H. Yang, B. Wang,* P. C. Tai*

Fluorescein Analogues Inhibit SecA ATPase: The First Sub-micromolar Inhibitor of Bacterial Protein Translocation

Battling bugs! As an essential component for bacterial growth, SecA is an ideal target for antimicrobial agents. Two fluorescein analogues rose bengal (RB) and erythrosin B (EB) were found to be potent inhibitors of SecA ATPase with IC_{50} values of 0.5 and 0.2 μM , respectively. RB and EB also exhibit inhibitory effects on cell growth and in vitro protein translocation.



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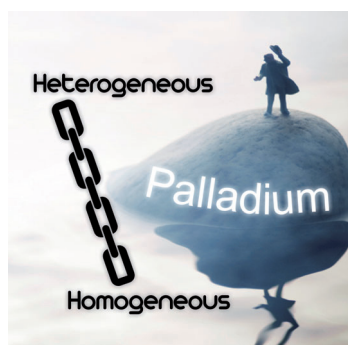
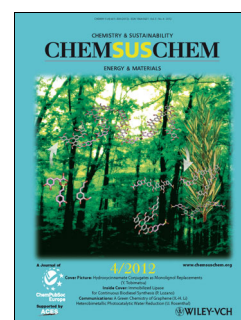
DOI: 10.1002/cssc.201100511

Supercapacitors

Y. J. Kim, C.-M. Yang, K. C. Park, K. Kaneko, Y. A. Kim,* M. Noguchi, T. Fujino, S. Oyama, M. Endo

Edge-Enriched, Porous Carbon-Based, High Energy Density Supercapacitors for Hybrid Electric Vehicles

Energy on edge: The new concept “molten potassium hydroxide-induced drilling effect” is introduced to achieve a high volumetric capacitance. The porous carbons produced by using this concept are edge-enriched. Edge sites contribute considerably to the capacitance and allow entrance to intraparticle pores. Therefore, these carbons are highly suitable electrode materials for high energy density supercapacitors for use in hybrid electric vehicles.



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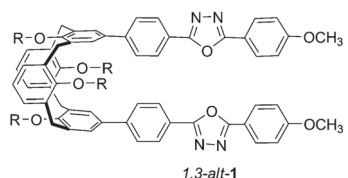
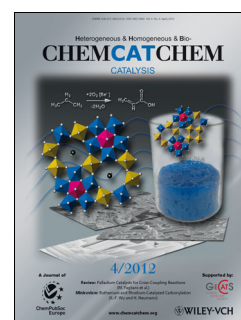
DOI: 10.1002/cctc.201100422

Cross-Coupling Reactions

M. Pagliaro,* V. Pandarus, R. Ciriminna, F. Béland, P. Demma Carà

Heterogeneous versus Homogeneous Palladium Catalysts for Cross-Coupling Reactions

Solid as a palladium rock: Numerous immobilized-Pd-catalysts for crosscoupling reactions have been introduced in the last decade. Are the observed catalyzed reactions truly heterogeneous or are they homogeneous due to leached palladium? This account critically addresses the leaching issue by referring to some of the newly developed catalytic systems, aiming to evaluate them based on uniform criteria.



ChemPlusChem

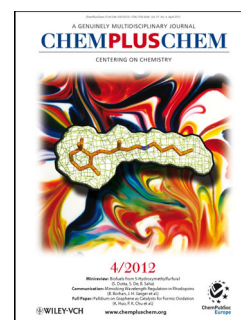
DOI: 10.1002/cplu.201200004

Fluorescent Chemosensors

J. Han,* F.-L. Wang, Y.-X. Liu, F.-Y. Zhang, J.-B. Meng, Z.-J. He

Calix[4]arene-Based 1,3,4-Oxadiazoles: Novel Fluorescent Chemosensors for Specific Recognition of Cu^{2+}

Responds only to Cu^{2+} ! Novel fluorescent chemosensors 1,3-alt-1 and cone-1 have been synthesized. They consist of two 1,3,4-oxadiazole units on the upper rim of the calix[4]arene. Both sensors show specific recognition of Cu^{2+} , where the 1,3-alt-1 conformer displayed a better sensitivity for Cu^{2+} than cone-1.



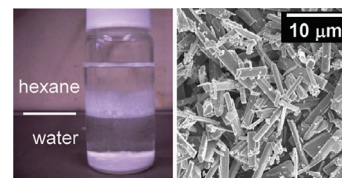


Biphasic Sol–Gel Synthesis

M. Tanaka, S. Fujihara*

Room-Temperature Sol–Gel Synthesis of Sodium Hexaniobate in an Immiscible Hexane–Water System and Its Conversion into NaNbO_3

Rod-like sodium hexaniobate particles were synthesized by a one-pot sol–gel method at room temperature by using an immiscible hexane–water system. They could be converted into NaNbO_3 by a heat treatment and a water dispersion treatment.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201101329

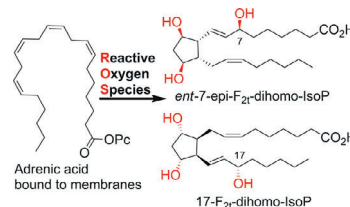


Isoprostanes

C. Oger, V. Bultel-Poncé, A. Guy, T. Durand, J.-M. Galano*

Total Synthesis of Isoprostanes Derived from Adrenic Acid and EPA

Reactive oxygen species initiate the in vivo autoxidative conversion of phospholipid-bound polyunsaturated fatty-acids. Adrenic acid, the main constituent of myelin, the “white matter” of the brain, is known to be converted into F_2 -dihomo-isoprostanes. We hereby present the total synthesis of the two main isomers present in vivo as well as one isomer derived from eicosapentaenoic acid.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201200070



Breakfast Chemistry

Klaus Roth

Boiled Eggs: Soft and Hard

Boiling the perfect breakfast egg is far from child's play. So many complex chemical processes must take place that the outcome cannot always be precisely predicted. The oological-chemical fundamentals of cooking eggs are examined to avoid – insofar as possible and with the aid of solid scientific information – both disappointment and family crises around the breakfast table.



ChemViews magazine
DOI: 10.1002/chemv.201200018